



Published in final edited form as:

*J Interpers Violence*. 2014 March ; 29(5): 948–965. doi:10.1177/0886260513505703.

## Intimate Partner Violence Reported by Two Samples of Deaf Adults via a Computerized American Sign Language Survey

Dr. Robert Q Pollard Jr.<sup>1</sup>, Ms. Erika Sutter<sup>2</sup>, and Dr. Catherine Cerulli<sup>3</sup>

Robert Q Pollard: Robert\_Pollard@urmc.rochester.edu; Erika Sutter: Erika\_Sutter@urmc.rochester.edu; Catherine Cerulli: Catherine\_Cerulli@urmc.rochester.edu

<sup>1</sup>Deaf Wellness Center, Department of Psychiatry, University of Rochester School of Medicine and Dentistry, 300 Crittenden Blvd., Rochester, NY 14642, 585-275-3544. Dr. Pollard is a clinical psychologist. He is founder and director of the Deaf Wellness Center, home to many clinical service, training, and research initiatives regarding mental health, sign language interpreting, and public health topics pertaining to deaf individuals. He is currently principal investigator on a CDC grant examining partner violence perpetration affecting deaf individuals

<sup>2</sup>National Center for Deaf Health Research, Department of Community and Preventive Medicine, University of Rochester School of Medicine and Dentistry, 265 Crittenden Blvd., CU420708, Rochester, NY 14642, 585-275-7347. Ms. Sutter is the Senior Health Project Coordinator at the Rochester Prevention Research Center: National Center for Deaf Health Research. She has been a researcher with the Center since its inception in 2004. Her interests include deaf health research, adolescent health and healthcare access, and mental health

<sup>3</sup>Laboratory of Interpersonal Violence and Victimization, Department of Psychiatry, University of Rochester School of Medicine and Dentistry, 300 Crittenden Blvd., Rochester, NY 14642, 585-275-5269. Dr. Cerulli is the founder and director of the Laboratory of Interpersonal Violence and Victimization. NIMH awarded Dr. Cerulli a five-year grant to implement a trial study in Family Court to assess whether enhanced mental health services enable intimate partner violence victims to better navigate safety. She was also co-principal investigator on a NIH award to assess whether victim participation in prosecution impacts subsequent safety

### Abstract

A computerized sign language survey was administered to two large samples of deaf adults. Six questions regarding intimate partner violence (IPV) were included, querying lifetime and past-year experiences of emotional abuse, physical abuse, and forced sex. Comparison data were available from a telephone survey of local households. Deaf respondents reported high rates of emotional abuse and much higher rates of forced sex than general population respondents. Physical abuse rates were comparable between groups. More men than women in both deaf samples reported past-year physical and sexual abuse. Past-year IPV was associated with higher utilization of hospital emergency services. Implications for IPV research, education, and intervention in the Deaf community are discussed.

## Keywords

DEAF; ABUSE; DOMESTIC VIOLENCE; SIGN LANGUAGE

Research on intimate partner violence (IPV) has repeatedly documented alarming incidence rates in the United States. A joint initiative of the Violence Against Women Office and the Centers for Disease Control and Prevention indicated that 20% of U.S. women and 7% of men are impacted by IPV during their lifetimes (Tjaden & Thoennes, 2000). More recent studies report even higher IPV rates among women and men seeking healthcare, with women reporting lifetime abuse (any type) and physical abuse rates at 44% and 34%, respectively (Thompson, Bonomi, Anderson, et al., 2006) and men reporting lifetime abuse and physical abuse rates at 30% and 18%, respectively (Reid, Bonomi, Revarta, et al., 2008.) These statistics are nearly double those of a decade ago. National estimates of the fiscal consequences of IPV exceed \$8 billion annually (Max, Rice, Finklestein, Bardwell, & Leadbetter, 2004) which may well be an underestimate, given that increased medical costs associated with IPV extend for three years after the violence has stopped (Fishman, Bonami, Anderson, Rivara, & Reid, 2010).

More women than men experience injuries related to IPV, although attention is being paid to the understudied topic of female IPV perpetration (Williams, Ghandour, & Kub, 2008). Beyond its physical consequences, IPV victims report high rates of depression and post-traumatic stress disorder (Campbell, 2002; Pico-Alfonso, et al., 2006; Stein & Kennedy, 2001) and are at high risk for suicide (Yellowless & Kaushik, 1994). Female IPV victims attempt suicide at rates 18% greater than the general population (Abbott, Johnson, Koziol-McLain & Lowenstein, 1995). Heru et al. (2006) found that more than 90% of psychiatric inpatients, regardless of gender, reported both suicidal ideation and IPV victimization in the past year.

The American Deaf<sup>1</sup> community certainly is not immune from IPV. In 1985, the first IPV intervention organization exclusively for deaf individuals was founded in Seattle (Smith, 2000). Since then, over 20 such organizations have been formed across the U.S. Eighteen of these comprise the Justice for Deaf Victims National Coalition (JDVNC) (Waddington, 2008).

While Deaf community IPV services have become more widespread, they have not been guided by empirical research uniquely focused on this community, that is, persons whose deafness usually occurs very early in life and who prefer to communicate via American Sign Language (ASL) (Anderson, Leigh, & Samar, 2011; Mason, 2010). ASL is structurally quite unlike English (Valli, Lucas, & Mulrooney, 2005). The unique language and cultural minority status of the Deaf community (Padden & Humphries, 2005) underscores the need for research activities and methodologies uniquely suited to this population (Barnett, McKee, Smith & Pearson, 2011; Pollard, 2002). Most IPV research that includes deaf

---

<sup>1</sup>In keeping with current publication standards in the deafness field, the uppercase “D” is used when referring to deaf people as a specific sociocultural group and the lowercase “d” when a more general reference to persons with severe hearing loss is intended.

persons has simply equated them with other individuals with disabilities. Still, such research is compelling.

Obinna, Krueger, Osterbaan, Sadusky, & DeVore (2006) cite work estimating that 83% of women with disabilities are sexually assaulted at some point in their lives. Anello (1998), citing “a small number of independent studies” in Canada, states that women with disabilities are 1.5 to 2 times more likely to be abused than non-disabled women. A 1994 Canadian survey indicated higher rates of sexual assault on disabled women by their spouses in comparison to non-disabled women – 39% vs. 29%, respectively (Anello, 1998). Other research suggests that women with disabilities are abused in greater numbers and for longer periods of time than those without disabilities (Nosek, Howland, Rintala, Young, & Chanpong, 2001). A common limitation of these studies is the failure to identify which specific disabilities the research participants had. The IPV risk factors potentially associated with different disabilities (e.g., blindness, spinal cord injury, cognitive impairment, or deafness) arguably are quite different in consideration of the barriers they may (or may not) present to self-defense, judgment, mobility-related safety, and access to IPV services or preventive educational initiatives. Conducting research with persons with disabilities as if this population is a homogeneous one hampers the utility of conclusions which can be drawn. An example of more useful research methods is Obinna, et al.’s (2006) study of 598 battered women’s programs in which the authors report that of all disability categories, women with hearing or vision impairment are least likely to be served by battered women’s shelters.

Deaf-specific IPV research is just beginning to emerge. Three recent studies (Anderson & Leigh, 2011; Anderson & Kobek Pezzarossi, 2011; Mason, 2010) focused on students at Gallaudet University, where nearly all undergraduates are deaf. However, each of these studies employed written English measures, not ASL-based measures, which may have affected the results (Graybill, et al., 2010; Pollard, 2002). Mason (2010) surveyed 226 Gallaudet students (both genders) and found that 27% reported past abusive relationships and 16% reported current abusive relationships. Physical abuse by current partners was reported by 11% of respondents. These numbers may well reflect under-reporting, since deaf female undergraduates appear to set a very “high bar” in labeling IPV behavior as abusive (Anderson & Kobek Pezzarossi, 2011), at least on English language measures, a problem aggravated in the Mason study which employed the unusually conservative assault frequency definition of “at least sometimes” rather than just once (Anderson & Leigh, 2011). Anderson and Leigh’s (2011) study examined dating-relationship IPV in a sample of 100 deaf female students, employing the English language version of the revised Conflict Tactics Scales (Strauss, 2007). In comparison to a sample of hearing female undergraduates (Sabina & Straus, 2008), twice as many deaf respondents (52%) reported experiencing past-year IPV. In this Gallaudet sample’s responses to past-year IPV, 91% reported experiencing psychological aggression, 61% sexual coercion, and 52% physical assault. Twenty-two percent reported physical injury resulting from assault. Another notable finding was the near-equivalent rates of their own IPV *perpetration* reported by the study subjects. However, this finding is not unique to deaf female undergraduates (Straus, 2011; Williams, Ghandour, & Kub, 2008). Nevertheless, studies reporting violence manifested by women

often fail to gather data regarding motive and intent. In the absence of such data, acts of self-defense may be interpreted as aggression, without attention to potentially important mitigating factors.

Schild and Dalenberg (2012) report data gathered from 79 deaf adults who responded to a number of trauma-related instruments that had been translated into ASL and were presented to the study subjects by a sign-fluent examiner. Though the data gathered was not always specific to IPV, the authors report that 20.6% of the men and 37.8% of the women reported experiencing sexual assault (presumably lifetime incidence) and an additional 38.2% of the men and 42.2% of the women reported “other unwanted sexual experiences” (undefined). Accounting for overlap between these two inquiry categories, the authors report that 44.1% of the men and 53.3% of the women reported “some kind of sexual abuse.”

The need for IPV research focused on the community-dwelling deaf population is particularly acute. There are many barriers excluding deaf ASL-users from public health research and surveillance, resulting in a dearth of knowledge regarding potential health disparities (Barnett, McKee, Smith, & Pearson, 2011; Zazove, et al., 1993), including IPV disparities. One study citing IPV incidence rates in the community-dwelling deaf population has appeared (Barnett, Klein, et al., 2011) but the brevity of the publication and its presentation of additional public health data limited the focus on IPV. Information regarding IPV perpetration by deaf versus hearing persons, potentially unique perpetration methods and dynamics relevant to this population (Anderson, Leigh & Samar, 2011), IPV disclosure and help-seeking behavior in the Deaf community, and the impact of Deaf-specific IPV service programs are unknown.

The present study was an effort to address the lack of linguistically and culturally appropriate IPV research geared specifically toward the community-dwelling population of deaf adult ASL-users. Our priority was to obtain IPV prevalence rate data reported by sizable Deaf community samples and compare them, where possible, to data from general population samples.

## Method

Pollard (2002) and colleagues (Barnett, Klein, et al., 2011; Graybill, et al., 2010) have described ethical and effective methods for conducting research with and about the Deaf community. The Rochester Prevention Research Center: National Center for Deaf Health Research (NCDHR) was established in 2004 for this purpose. NCDHR’s inaugural project was the development and implementation of a health risk behavior survey (named the Deaf Health Survey or DHS), accessible to deaf respondents in ASL, manually coded English (MCE)<sup>2</sup> and written English via an interactive touch-screen computer interface (Barnett, Klein, et al., 2011). The computer interface allowed survey respondents to select the presentation of instructions, questions, and answer choices in ASL (via film clips), MCE

---

<sup>2</sup>Manually coded English (MCE) refers to a number of invented communication systems that borrow from ASL vocabulary but present signs in ways that are consistent with English grammar and syntax rather than that of ASL. A sizable number of deaf individuals have been educated in settings that employ MCE. It was therefore decided to include MCE versions of the questions and answers on the NCDHR Deaf Health Survey in addition to the ASL versions.

(via film clips), and/or written English and switch among these communication modalities at any time, or view the survey content in all three modalities if they wished. Regarding the film clips in ASL and MCE, the interface allowed respondents to choose from among six signers, presenting the same survey content in ASL or MCE. The DHS survey questions were drawn from established national health surveillance instruments, in particular, the Behavioral Risk Factor Surveillance System (BRFSS) (Centers for Disease Control and Prevention, 2004). Six IPV questions were included in the DHS survey. These addressed physical abuse, emotional abuse, and forced sex experiences, and inquired about lifetime and past-year abuse experiences in each of these three categories. The survey also queried about past-year hospital emergency department visits, among other topics.

As detailed by Graybill, et al. (2010), a rigorous procedure was followed for ensuring meaning equivalence between the source (e.g., BRFSS) item wording and the ASL translation. During the translation process, this often required making explicit certain terms used in the English source items that otherwise cannot effectively be conveyed in ASL.<sup>3</sup> Limitations in English literacy and especially “fund of information” (O’Hearn & Pollard, 2008; Pollard, 1998) often require ASL translations of English “categorization” terms (such as the word “abuse”) to be described in terms of specific behaviors (Graybill, et al., 2010). Accordingly, while terms such as “abuse” are used herein, the actual ASL and MCE translations viewed by the study respondents included specific descriptions of what behaviors constituted physical and emotional abuse, and forced sex. All translated survey items were validated via back-translation, where an independent person who was bilingual and unfamiliar with the original source material translated the items from ASL or MCE back into written English. Any significant discrepancies between the source English content and the back-translated English content were resolved by consensus and re-translation. A second step we employed to assure meaning equivalence with the source items was the conduct of in-depth cognitive interviews (Willis, 2005; Willis, 1999) prior to release of the DHS survey. We used a modified “think aloud” process to confirm a shared understanding of the meaning of each item and, on some occasions, made changes to the item translations based on these cognitive interview results.

Two large samples of deaf adults engaged the touch-screen kiosk presenting the Deaf Health Survey. The first consisted of deaf residents of the greater Rochester, NY, area (“Rochester sample”) who responded to the survey in various Rochester locations during a six-month period in 2008. Respondents were recruited through Deaf community organizations and networks, healthcare providers, at public events, through deaf-related email listservs and electronic media, and by their peers (“word of mouth”). Some (41.6%) took the survey at NCDHR’s university offices, either by appointment or walk-in. Others took the survey at community sites, such as the Rochester Recreation Club of the Deaf. For a few individuals with limited transportation, NCDHR staff brought the survey to their home. The second

---

<sup>3</sup>For example, rather than use the general ASL terms for “partner,” “emotion,” or “psychological” in reference to emotional abuse, the ASL query on this topic conveyed the following (translated here into English): “Has an intimate partner (husband, wife, girlfriend, boyfriend, partner or someone with whom you’ve been in a relationship) ever frequently yelled at you, insulted you, made you feel inferior, been verbally cruel to you, prevented you from obtaining food or money or medicine, or prevented you from contacting or visiting with your friends or family, or prevented you from leaving the house?” Notably, the impetus to include a question on emotional abuse came from survey pilot-test feedback from Deaf individuals who noted that the pilot version only queried physical and sexual abuse and recommended that questions on emotional abuse be added.

sample consisted of deaf adults who did not reside in the Rochester area (per zip code data) but who responded to the survey during 40-year alumni reunion events hosted by the National Technical Institute for the Deaf (NTID), also in Rochester, in June, 2008. We characterize this second sample as a national convenience sample (“National sample”), consisting of NTID alumni, spouses, friends, etc., who lived outside the Rochester region. Respondents in both samples interacted with the computerized survey behind privacy curtains. In order to maintain comparability with other national surveillance systems, no incentives were provided to the survey participants.

We compared results from these two deaf adult samples with BRFSS data collected during a local, random digit dial telephone survey conducted in Monroe County, NY (which includes Rochester) in 2006 (Monroe County Health Department, 2007). For these analyses, we report summary statistics (means or proportions with 95% confidence intervals) for the two deaf samples and the Monroe County BRFSS sample; this approach is consistent with previous reports comparing the Deaf Health Survey with the Monroe County BRFSS sample (Barnett, Klein, et al., 2011). We used SAS® version 9.2 survey procedures (SAS® Institute, 2009) to adjust for biases introduced by telephone survey methodology.<sup>4</sup> The Monroe County BRFSS only administered IPV items to respondents younger than age 65 (N=1,906). Accordingly, we herein report only the demographic and IPV prevalence summary statistics for persons from the two deaf samples who were younger than 65 (Rochester sample N=308, National sample N=162).

We also compared our IPV prevalence data with data from the National Violence Against Women Survey (NVAWS) (Tjaden & Thoennes, 2000) which *does* include data from persons 65 and older. Since we did not have direct access to the NVAWS dataset, we were unable to omit the data pertaining to persons 65 and older, thus our comparison was based on the Tjaden & Thoennes (2000) report alone.

The University of Rochester Medical Center’s IRB and the Rochester Institute of Technology’s IRB (responsible for research involving NTID) provided human subjects approval for this study.

## Results

Table 1 presents demographic data for both deaf samples and the Monroe County BRFSS telephone survey sample. Age and gender statistics for the three groups are similar, as is the proportion of Hispanic respondents. The Monroe County BRFSS sample included about 5–10% more non-white individuals than the two deaf samples. Education and income statistics between the three samples show important differences. About two-thirds of the Monroe County BRFSS sample reported education beyond the high school level whereas both deaf samples reported notably higher levels of education. Yet, despite higher educational attainment, the two deaf samples reported lower annual household incomes than the Monroe County BRFSS sample.

---

<sup>4</sup>The BRFSS over-sampled the City of Rochester in order to achieve adequate numbers of African-Americans, Latinos, and older adults. Data were weighted to correct for unequal chances of selection and non-response rates, and to match the Monroe County population distribution for age, sex, race, and Latino origin (Monroe County Health Department, 2007).



Table 2 presents self-reported IPV experience rates among the three survey samples, distinguishing between the three types of abuse queried (emotional, physical, and forced sex), and past-year versus lifetime (ever) experiences of each abuse type. Table 3 presents the self-reported IPV experience rates for women and men separately. The last column of Tables 2 and 3 present NVAWS data for comparison purposes. Again, the ASL and MCE definitions of all three abuse types entailed a list of specific behaviors widely accepted as comprising these respective types of abuse, whereas such details were not listed in the corresponding English questions on the Monroe County BRFSS or the NVAWS.

Although emotional abuse was not queried in the Monroe County BRFSS telephone survey (nor the NVAWS), the rates reported by both deaf samples exceed 25% (lifetime) and 5% in the past year. More women than men in these two deaf samples reported experiencing lifetime emotional abuse but the gender difference was not marked.

A greater proportion (about 6%) of both deaf samples reported experiencing physical abuse at some time in their lives in comparison to the Monroe County BRFSS sample. Again, gender was a factor, with more women than men in both deaf samples reporting lifetime physical abuse but the gender difference was greater than that noted for emotional abuse. The gender difference in lifetime physical abuse in all three local survey samples is less marked than that reported in the NVAWS.

Since only a small number of individuals reported past-year physical abuse, contrasting those percentage figures in Table 2 is less useful. Notably, however, more men than women in both deaf samples reported past-year physical abuse, unlike the Monroe County survey and the NVAWS.

The greatest IPV disparities revealed in this study pertained to forced sex experiences. Almost three to four times as many deaf persons, in the National sample and Rochester sample respectively, reported experiencing forced sex at some time in their lives, compared to the Monroe County BRFSS sample. The forced sex lifetime prevalence rates in the two deaf samples were about twice as great as that reported in the NVAWS sample. More women than men reported lifetime forced sex in all three samples but this gender difference was much less marked in both deaf samples than in the comparison groups, especially as reported by the National deaf sample.

The considerable disparity in forced sex experiences reported by the two deaf samples was replicated when restricting such reports to past-year experiences only. Three to five times as many deaf participants reported past-year forced sex in comparison to Monroe County BRFSS respondents. However, the gender difference in past-year forced sex was *reversed* in both deaf samples, with more men than women reporting it, quite unlike the Monroe County sample.

Hospital emergency department (ED) utilization was higher among persons from both deaf samples who experienced one or more types of IPV in the past 12 months (tabular data not shown). Thirteen of the 34 respondents from the Rochester deaf sample (38.2%) who reported past-year IPV also reported one or more past-year ED visits, in contrast to an overall past-year ED utilization rate of 31.1% for the entire Rochester deaf sample. Among

the National deaf sample, 7 of 12 respondents (58.3%) who reported past-year IPV also reported one or more past-year ED visits, in contrast to an overall past-year ED utilization rate of 31.6% for the entire National deaf sample. Past-year ED utilization was not queried in the Monroe County BRFSS.

## Discussion

These data suggest that deaf adults who use sign language experience notably higher rates of IPV than does the general population, at least in some IPV categories. Our data regarding emotional abuse identifies it as the form of IPV most frequently reported by deaf persons, at rates exceeding 25% (lifetime). Reports of physical abuse appear to be at least as common among our deaf samples, if not slightly more so, as in the general population. The forced sex results suggest that sexual violence is much more frequently experienced by deaf persons, consistent with Schild and Dalenberg's (2012) findings regarding sexual abuse among deaf adults and Anello's (1998) data regarding sexual abuse, including within marriages, among women with disabilities. These data, while preliminary, provide a foundation for establishing IPV prevalence rates among deaf adults and conducting further IPV research with deaf sign language users. This study also provides incentive and evidence for further conversations about the importance of screening for intimate partner violence in clinical and community settings serving deaf individuals, and how best to conduct such screenings and assessments.

The IPV gender distribution patterns among deaf respondents differed considerably from those usually occurring in the general population and expand upon Anderson and Leigh's (2011) report of high rates of IPV perpetration by deaf female college students. The greater proportion of deaf men than deaf women reporting past-year physical abuse and past-year forced sex is remarkable, as is the more general trend in the data from the two deaf samples suggesting smaller gender differences in abuse experiences than is typically found in national IPV surveys (e.g., Tjaden and Thoennes, 2000). However, smaller gender differences are consistent with recent perpetration research (Williams, Ghandour, & Kub, 2008). A recent national study (Black, et al, 2011) also suggests that the gender distribution of IPV behavior is changing among the general population. This study suggests that 35.6% of women and 28.5% of men report rape, physical assault, or stalking in their lifetime. Our gender data suggest a need for uniquely-designed efforts regarding IPV prevention and intervention with deaf individuals and underscore the need to direct such services to deaf men as well as deaf women.

Our study also demonstrated that IPV experienced by deaf individuals is associated with increased utilization of hospital emergency services, although only a small number of individuals were included in these analyses. While comparison data were not available from the local general population, these results suggest that IPV reported by deaf persons has significant physical and/or psychiatric consequences, as is commonly found in other IPV studies.

The differing relationships between education and income among these survey samples also are noteworthy. Despite being more educated, the two deaf samples reported lower annual



household incomes than the telephone survey sample, suggesting significant under-employment among deaf respondents. Economic inequities can be associated with health disparities as well as IPV risk. The IPV disparities reported by these two deaf samples indicate that higher education does not attenuate IPV risk among deaf persons. While crime research documents that risk travels across cultural, racial and economic boundaries, being a poor, minority, uneducated female puts one at greater risk for IPV (Tjaden & Thoennes, 2000; Truman & Rand, 2010).

While the NCDHR Deaf Health Survey represented a significant step forward in language accessibility for deaf research participants, our study has limitations as well. The samples engaged were convenience samples and the Rochester/Monroe County findings only represent one particular community; thus, the two deaf samples are unlikely to be representative of the larger Rochester or national deaf populations, respectively. Methods of recruiting both deaf samples held biases that failed to include deaf individuals who are not connected to the Rochester Deaf community or NTID social networks. Such biases were evidenced in the high education level of respondents from both deaf samples. Similarly, the National sample contained respondents who were attending 40-year alumni reunion events at NTID, and therefore likely under-represents individuals in the 18–35-year-old age range, who are generally at higher risk for IPV victimization. It is reasonable to conjecture that the IPV incidence rates reported would have been even higher if a greater number of less-educated deaf individuals had been included in the survey. In addition, since the Monroe County BRFSS only asked IPV questions of respondents under age 65, we were limited in our ability to compare IPV prevalence in these deaf adult samples with the county data.

It should also be noted that the BRFSS telephone survey did not employ the behaviorally-defined descriptions of the three abuse types that were incorporated into the ASL and MCE translations of the DHS items. It is conceivable that the lack of such behaviorally-defined descriptions could lead to under-reporting of IPV in BRFSS telephone survey sample and, accordingly, account for some degree of the IPV disparities we identified. However, surveillance or other research methods with the Deaf community that fail to address language, cultural, fund of information, and literacy differences (Barnett, Klein, et al., 2011; Barnett, McKee, Smith, & Pearson, 2011; Graybill, et al., 2010) can greatly impact the validity of data provided by deaf persons, especially those who communicate primarily via sign language. Further research on methodological procedures that produce the most valid data from deaf sign language users versus persons from the general, English-fluent population is needed, not only in relation to IPV but myriad other topics pertaining to potential health disparities between deaf and hearing people.

Another fruitful avenue for further IPV research is to move beyond studies of victimization incidence rates into explorations regarding IPV perpetrators (including in cases of bi-directional couple violence), protective factors, counseling effectiveness, and partner violence triggers, motives, and intent. Neither the NCDHR survey nor the BRFSS examined these broader issues. However, a new, three-year study conducted by the authors and colleagues in the deaf and IPV research fields at our institution is drawing to a close and shedding light on epidemiological factors pertaining to IPV affecting the Deaf community. The study is based on in-depth, nationwide interviews with service providers who work with

deaf victims and perpetrators, deaf IPV victims, and perpetrators (hearing or deaf) who have been involved in physical or sexually violent relationships where one or both persons was a deaf sign language user. Our intent in this work is to provide a fuller picture of the antecedents of such violence and how more culturally informed prevention and intervention programs might be developed.

In conclusion, our current research findings suggest deaf individuals experience significant IPV disparities in comparison to the general population, as reported via methodologies that present survey content in a linguistically and culturally accessible manner. Disparities in emotional abuse and forced sex experiences were particularly marked and the gender patterns of certain forms of IPV victimization were atypical of the general population. Accordingly, there is a great need for further research on the Deaf community's unique IPV experiences as well as the development of education and intervention services fitting this community's particular IPV patterns and sociocultural and linguistic characteristics. Current approaches designed for the general population may not be appropriate for and inclusive of this sizable American minority population.

## Acknowledgments

The authors thank Christina Smith, the Monroe County Health Department, the Research Committee of the National Center for Deaf Health Research (NCDHR), the NCDHR Deaf Health Community Committee, and the many deaf individuals who responded to the NCDHR Deaf Health Survey for their contributions to this research.

This publication was supported by Cooperative Agreement Number 5U48DP001910 and 1U48DP000031 from the Centers for Disease Control and Prevention (CDC), Prevention Research Centers Program and by award 5 R01/CE001871-01 from the CDC's National Center for Injury Prevention and Control. Catherine Cerulli was supported by a grant from the National Institute of Mental Health (K01 MH75965-01). The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention or the National Institute of Mental Health.

## References

- Abbott J, Johnson R, Koziol-McLain J, Lowenstein SR. Domestic violence against women: Incidence and prevalence in an emergency department population. *JAMA*. 1995; 273(22):1763–1767. [PubMed: 7769770]
- Anderson, ML. Doctoral dissertation. 2010. Prevalence and predictors of intimate partner violence victimization in the deaf community. Retrieved from Dissertations and Theses database (UMI No. 3441295)
- Anderson ML, Leigh IW. Intimate partner violence against deaf female college students. *Violence Against Women*. 2011; 17(7):822–834. [PubMed: 21676984]
- Anderson, ML.; Kobek Pezzarossi, CM. [access on December 20 2011] Is it abuse? Deaf female undergraduates' labeling of partner violence. *Journal of Deaf Studies and Deaf Education*. 2011. Retrieved from <http://jdsde.oxfordjournals.org/> at OUP site
- Anderson ML, Leigh IW, Samar VJ. Intimate partner violence against deaf women: A review. *Aggression and Violent Behavior*. 2011;10.1016/j.avb.2011.02.006
- Anello, B. Inter-sectoral workshop on violence against women with disabilities and deaf women and access to the justice system. 1998. Retrieved January 12, 2009 from <http://dawn.thot.net/workshop.html#5>
- Barnett S, Klein JD, Pollard RQ Jr, Samar V, Schlehofer D, Starr M, et al. Community participatory research with deaf sign language users to identify health inequities. *American Journal of Public Health*. 2011; 101(12):2235–2238. [PubMed: 22021296]

- Barnett S, McKee M, Smith SR, Pearson TA. Deaf sign language users, health inequities, and public health: opportunity for social justice. *Preventing Chronic Disease*. 2011; 8(2) [http://www.cdc.gov/pcd/issues/2011/mar/10\\_0065.htm](http://www.cdc.gov/pcd/issues/2011/mar/10_0065.htm).
- Black, MC.; Basile, KC.; Breiding, MJ.; Smith, SG.; Walters, ML.; Merrick, MT., et al. The National Intimate Partner and Sexual Violence Survey (NISVS): 2010 Summary Report. Atlanta, GA: National Center for Injury Prevention and Control, Centers for Disease Control and Prevention; 2011.
- Campbell JC. Health consequences of intimate partner violence. *The Lancet*. 2002; 359:1331–1336.
- Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System survey questionnaire. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2004.
- Fishman P, Bonomi AE, Anderson ML, Rivara FP, Reid RJ. Changes in health care costs over time following the cessation of intimate partner violence. *Journal of General Internal Medicine*. 2010; 25(9):920–925. [PubMed: 20414736]
- Graybill P, Aggas J, Dean RK, Demers S, Finigan E, Pollard RQ. A community-participatory approach to adapting survey items for deaf individuals and American Sign Language. *Field Methods*. 2010; 22(4):429–448.
- Heru AM, Stuart GL, Rainey S, Eyre J, Recoparo PR. Prevalence and severity of intimate partner violence and associations with family functioning and alcohol abuse in psychiatric inpatients with suicidal intent. *Journal of Clinical Psychiatry*. 2006; 67:23–29. [PubMed: 16426084]
- Mason TC. Does knowledge of dating violence keep deaf college students at Gallaudet University out of abuse relationships? *Journal of the American Deafness and Rehabilitation Association*. 2010; 43(2):74–91.
- Max W, Rice D, Finklestein E, Bardwell R, Leadbetter S. The economic toll of intimate partner violence against women in the United States. *Violence and Victims*. 2004; 19(3):259–272. [PubMed: 15631280]
- Monroe County Department of Public Health. Monroe County adult health survey report 2006. Rochester, NY: Monroe County Department of Public Health; 2007. Available at: <http://www.monroecounty.gov/File/Health/2006%20ADULT%20HEALTH%20SURVEY.pdf> [Accessed January 24, 2011]
- Nosek MA, Howland C, Rintala DH, Young ME, Chanpong GF. National study of women with physical disabilities: Final report. *Sexuality and Disability*. 2001; 19(1):5–40.
- Obinna, J.; Krueger, S.; Osterbaan, C.; Sadusky, JM.; DeVore, W. Final report submitted to the National Institute of Justice. Washington, DC: 2006 February. Understanding the Needs of the Victims of Sexual Assault in the Deaf Community. (NCJ 212867), available at [www.ncjrs.gov/pdffiles1/nih/grants/212867.pdf](http://www.ncjrs.gov/pdffiles1/nih/grants/212867.pdf)
- O'Hearn AM, Pollard RQ. Modifying Dialectical Behavior Therapy for Deaf individuals. *Cognitive and Behavioral Practice*. 2008; 15:400–414.
- Padden, C.; Humphries, T. *Inside Deaf Culture*. Cambridge, MA: Harvard University Press; 2005.
- Pico-Alfonso MA, Garcia-Linares MI, Celda-Navarro N, Blasco-Ros C, Echeburua E, Martinez M. The impact of physical, psychological, and sexual intimate male partner violence on women's mental health: Depressive symptoms, posttraumatic stress disorder, state anxiety, and suicide. *Journal of Women's Health*. 2006; 15(5):599–611.
- Pollard, RQ. Ethical conduct in research involving deaf people. In: Gutman, VA., editor. *Ethics in mental health and deafness*. Washington, DC: Gallaudet University Press; 2002. p. 162-178.
- Pollard, RQ. Psychopathology. In: Marschark, M.; Clark, D., editors. *Psychological perspectives on deafness*. Vol. 2. Mahwah, NJ: Lawrence Erlbaum, Inc; 1998. p. 171-197.
- Reid RJ, Bonomi AE, Rivara FP, et al. Intimate partner violence among men: Prevalence, chronicity, and health effects. *American Journal of Preventive Medicine*. 2008; 34(6):478. [PubMed: 18471583]
- Sabina C, Straus MA. Polyvictimization by dating partners and mental health among U.S. college students. *Violence and Victims*. 2008; 23(6):667–682. [PubMed: 19069560]
- SAS Institute Inc. SAS/STAT® 9.2 User's Guide. 2. Cary, NC: SAS Institute, Inc; 2009. p. 6286-523.

- Schild S, Dalenberg CJ. Trauma exposure and traumatic symptoms in deaf adults. *Psychological Trauma: Theory, Research, Practice, and Policy*. 2012; 4(1):117–127.
- Smith, M. Supporting deaf women in Seattle: Abused Deaf Women's Advocacy Services. In: Abramson, W.; Emanuel, E.; Gaylord, V.; Hayden, M., editors. *Impact: Feature Issue on Violence Against Women with Developmental or Other Disabilities*. Vol. 13. Minneapolis, MN: University of Minnesota, Institute on Community Integration; 2000. [online]Retrieved January 11, 2009 from <http://ici.umn.edu/products/impact/133/>
- Stein M, Kennedy C. Major depressive and post-traumatic stress disorder comorbidity in female victims of intimate partner violence. *Journal of Affective Disorders*. 2001; 66:133–138. [PubMed: 11578665]
- Straus, MA. Conflict Tactics Scales. In: Jackson, NA., editor. *Encyclopedia of Domestic Violence*. New York: Routledge: Taylor & Francis Group; 2007. p. 190-197.
- Straus MA. Gender symmetry and mutuality in perpetration of clinical-level partner violence: Empirical evidence and implications for prevention and treatment. *Aggression and Violent Behavior*. 2011; 16(4):279–288.
- Thompson RS, Bonomi AE, Anderson MS, Reid RJ, Dimer JA, Carrell D, Thompson RS. Intimate partner violence: Prevalence, types, and chronicity in adult women. *American Journal of Preventive Medicine*. 2006; 30(6):447–457. [PubMed: 16704937]
- Tjaden, P.; Thoennes, N. Full Report of the Prevalence, Incidence, and Consequences of Violence Against Women: Findings from the National Violence Against Women Survey. Washington, D.C: National Institute of Justice and the Centers for Disease Control and Prevention; 2000. Available at: <https://www.ncjrs.gov/pdffiles1/nij/183781.pdf> Accessed August 22, 2011
- Truman, J.; Rand, M. National crime victimization survey, criminal victimization 2009. (Bulletin No. NCJ 231327). U.S. Department of Justice; 2010.
- Valli, C.; Lucas, C.; Mulrooney, K. *Linguistics of American Sign Language*. 4. Washington, DC: Gallaudet University Press; 2005.
- Waddington, L. Iowa group lands federal grant to help deaf assault survivors. *The Iowa Independent*. 2008 Jul 28. Retrieved January 11, 2009 from <http://iowaindependent.com/2749/iowa-group-lands-federal-grant-to-help-hearing-impaired-assault-survivors>
- Williams JR, Ghandour RM, Kub JE. Female perpetration of violence in heterosexual intimate relationships: Adolescence through adulthood. *Trauma, Violence and Abuse*. 2008; 9:227.
- Willis, GB. *Cognitive interviewing: A tool for improving questionnaire design*. Thousand Oaks, CA: Sage Publications; 2005.
- Willis, GB. *Cognitive interviewing: A "how to" guide*. Research Triangle Park, NC: Research Triangle Institute; 1999.
- Yellowless PM, Kaushik AV. A case-control study of the sequelae of childhood sexual assault in adult psychiatric patients. *Medical Journal of Australia*. 1994; 160(7):408–411. [PubMed: 8007862]
- Zazove P, Niemann LC, Gorenflo DW, Carmack C, Mehr D, Coyne JC, Antonucci T. The health status and health care utilization of deaf-and-hard of hearing persons. *Archives of Family Medicine*. 1993; 2:745–752. [PubMed: 8111500]

**Table 1**

Demographics of survey respondents in each sample group (under age 65 only)

	<b>Deaf Health Survey, Rochester Sample N=308 % (95% CI)</b>	<b>Deaf Health Survey, National Sample N=162 % (95% CI)</b>	<b>Monroe County BRFSS N=1906* % (95% CI)</b>
<b>Age</b>			
Mean, standard deviation	44.0 (42.7–45.3)	46.8 (45.5–48.1)	40.5 (39.6–41.4)
Minimum, Maximum	18, 64	19, 64	18, 64
<b>Age groups</b>			
18–24	5.8 (3.2–8.5)	1.2 (0.0–3.0)	16.4 (13.3–19.5)
25–34	14.9 (10.9–18.9)	5.6 (2.0–9.1)	19.3 (16.8–21.8)
35–44	27.6 (22.6–32.6)	34.6 (27.2–42.0)	23.1 (20.8–25.5)
45–54	30.5 (25.3–35.7)	40.1 (32.5–47.8)	23.8 (21.5–26.2)
55–64	21.1 (16.5–25.7)	18.5 (12.5–24.6)	17.3 (15.4–19.2)
<b>Gender</b>			
Female	53.9 (48.3–59.5)	49.7 (41.9–57.5)	50.9 (47.8–54.0)
Male	46.1 (40.5–51.7)	50.3 (42.5–58.1)	49.1 (46.0–52.2)
<b>Race</b>			
White	85.7 (81.6–89.7)	89.3 (84.3–94.3)	80.5 (78.1–82.9)
Non-White	14.3 (10.3–18.4)	10.7 (5.7–15.7)	19.5 (17.1–21.9)
<b>Hispanic</b>	3.4 (1.3–5.5)	4.0 (0.8–7.2)	4.3 (3.2–5.4)
<b>Education Level</b>			
Did not finish high school	5.5 (2.8–8.1)	2.0 (0.0–4.3)	5.9 (4.4–7.5)
High school graduate or GED	10.6 (7.1–14.2)	3.3 (0.4–6.2)	24.0 (21.3–26.6)
Some college/2 yr degree	36.3 (30.8–41.8)	46.7 (38.6–54.7)	25.5 (22.8–28.3)
4 yr college degree or higher	47.6 (41.8–53.3)	48.0 (39.9–56.1)	44.5 (41.5–47.6)
<b>Annual Household Income</b>			
Less than \$20,000	27.4 (22.1–32.7)	15.8 (9.8–21.7)	17.2 (14.7–19.7)
\$20–35,000	23.7 (18.7–28.8)	22.6 (15.7–29.5)	12.2 (10.4–14.1)
\$35–75,000	35.8 (30.1–41.5)	37.7 (29.7–45.6)	37.6 (34.4–40.7)
More than \$75,000	13.1 (9.1–17.2)	24.0 (17.0–31.0)	33.0 (30.0–36.1)

BRFSS=Behavioral Risk Factor Surveillance System

CI=Confidence Interval

Note: Percentages may not equal 100% due to rounding.

\* Data in this column are weighted as described in the Methods; the unweighted N is presented here to show actual sample size.

**Table 2**

Self-reported prevalence of IPV among adults under age 65 in each sample group

	<b>Deaf Health Survey Rochester Sample* N=308 % (95% CI)</b>	<b>Deaf Health Survey National Sample N=162 % (95% CI)</b>	<b>Monroe County BRFSS* N=1906** % (95% CI)</b>	<b>National Violence Against Women Survey N=16,000 %</b>
Emotionally abused ever	27.5 (22.4–33.1)	25.4 (18.5–33.6)	Not asked	Not asked
Emotionally abused past 12 months	7.4 (4.8–11.3)	5.1 (2.2–10.6)	Not asked	Not asked
Physically abused ever	21.0 (16.3–25.8)	20.1 (13.5–26.8)	13.9 (11.8–16.0)	29.5
Physically abused past 12 months	3.1 (1.1–5.1)	2.1 (0.0–4.4)	2.7 (1.7–3.8)	2.2
Forced sex ever	20.8 (16.1–25.6)	14.5 (8.7–20.3)	5.8 (4.5–7.0)	8.0
Forced sex past 12 months	3.8 (1.6–6.1)	2.1 (0.0–4.4)	0.7 (0.1–1.3)	0.2

BRFSS=Behavioral Risk Factor Surveillance System

CI=Confidence Interval

\* These data were originally reported in Barnett, Klein, et al. (2011).

\*\* Data in this column are weighted as described in the Methods; the unweighted N is presented here to show actual sample size.



**Table 3**

Self-reported prevalence of IPV among women and men under age 65 in each sample

<b>WOMEN ONLY</b>				
	<b>Deaf Health Survey Rochester Sample Women<sup>*</sup> N=165 % (95% CI)</b>	<b>Deaf Health Survey National Sample Women N=80 % (95% CI)</b>	<b>Monroe County BRFSS Women<sup>*</sup> N=1239<sup>**</sup> % (95% CI)</b>	<b>National Violence Against Women Survey<sup>***</sup> Women N=8,000 %</b>
Emotionally abused ever	29.4 (22.4–37.4)	27.1 (17.5–39.3)	Not asked	Not asked
Emotionally abused past 12 months	7.9 (4.3–13.7)	4.3 (1.1–13.0)	Not asked	Not asked
Physically abused ever	25.3 (18.5–32.2)	22.2 (12.4–32.1)	16.7 (14.2–19.2)	22.1
Physically abused past 12 months	2.5 (0.1–5.0)	1.4 (0.0–4.2)	3.1 (1.6–4.5)	1.3
Forced sex ever	29.7 (22.5–37.0)	16.9 (8.0–25.8)	10.4 (8.2–12.6)	7.7
Forced sex past 12 months	3.2 (0.4–6.0)	1.4 (0.0–4.2)	1.1 (0.0–2.1)	0.2

  

<b>MEN ONLY</b>				
	<b>Deaf Health Survey Rochester Sample Men N=141 % (95% CI)</b>	<b>Deaf Health Survey National Sample Men N=81 % (95% CI)</b>	<b>Monroe County BRFSS Men N=667<sup>**</sup> % (95% CI)</b>	<b>National Violence Against Women Survey Men N=8,000 %</b>
Emotionally abused ever	25.4 (18.3–33.9)	23.5 (14.4–35.7)	Not asked	Not asked
Emotionally abused past 12 months	7.0 (3.5–13.2)	5.9 (1.9–15.1)	Not asked	Not asked
Physically abused ever	16.0 (9.7–22.4)	18.3 (9.1–27.5)	11.0 (7.7–14.3)	7.4
Physically abused past 12 months	3.8 (0.5–7.1)	2.8 (0.0–6.8)	2.3 (0.8–3.9)	0.9
Forced sex ever	10.1 (4.8–15.3)	12.3 (4.6–20.1)	1.0 (0.1–1.9)	0.3
Forced sex past 12 months	4.7 (1.0–8.3)	2.7 (0.0–6.6)	0.3 (0.0–0.7)	Not calculated <sup>***</sup>

BRFSS=Behavioral Risk Factor Surveillance System

CI=Confidence Interval

\* Data reported in this manuscript were primarily collected and analyzed by the NCDHR; prevalence data for women in these two sample groups underwent secondary data analysis and were reported as part of a doctoral dissertation at Gallaudet University (Anderson, 2010).

\*\* Data in this column are weighted as described in the Methods; the unweighted N is presented here to show the sample size of each gender group.

\*\*\* In NVAWS analyses, estimates were not calculated on fewer than five victims (Tjaden & Thoennes, 2000).